IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF ALASKA

JOHNNIE CRISCO and THE ESTATE OF ANNA CRISCO by HER PERSONAL REPRESENTATIVE, ROBIN BOOKER,

Plaintiffs,

vs.

UNITED STATES OF AMERICA,

Defendant.

Case No. 3:03-cv-0011-HRH

TRANSCRIPT OF EXCERPT OF PROCEEDINGS

HELD BEFORE THE HONORABLE H. RUSSEL HOLLAND

Tuesday, September 18, 2007

Testimony of Dr. Chansky and Dr. Vigeland

Pages 1 - 71, inclusive

Anchorage, Alaska

A-P-P-E-A-R-A-N-C-E-S

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I-N-D-E-X

ANCHORAGE, ALASKA; TUESDAY, SEPTEMBER 18, 2007

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(Counter 9:01:01)

THE CLERK: All rise.

His Honor the Court, the United States District Court for the District of Alaska is now in session with the Honorable H. Russell Holland presiding.

Please be seated.

THE COURT: Good morning, ladies and gentlemen.

MR. KAPOLCHOK: Good morning, Your Honor.

THE COURT: This is the continuation of trial in Crisco versus United States, 03 Civil No. 11.

We are ready for your next witness, Mr. Pomeroy.

MR. POMEROY: Government would call Dr. Howard Chansky.

THE CLERK: Dr. Chansky, please stand before me so I can swear you in.

Please raise your right hand.

(Witness sworn.)

THE CLERK: Thank you. Please have a seat

in the witness box.

Please speak into the microphone at all times.

If you would state your full name, spelling your last name, and a current address.

THE WITNESS: Howard Alan Chansky, C-H-A-N-S-K-Y. And my address is 8530 Southeast 80th Street, Mercer Island, Washington.

THE CLERK: Thank you.

THE COURT: You may inquire.

DIRECT EXAMINATION

BY MR. POMEROY:

Q. Dr. Chansky, what's your profession?

A. I'm an orthopedic surgeon.

Q. And where are you employed?

A. I'm employed at the University of Washington and the Puget Sound Veterans Hospital.

Q. And how do you come to be employed at both places?

A. Well, I was hired by the university and that's my academic appointment. And I practice primarily at the VA, but I also have a practice at the university.

Q. Okay. Do you have particular job titles at each institution?

A. At the university I'm a professor and vice-chairman of our orthopedic department. At the VA I'm chief of orthopedics.

Q. And what's your educational background?

A. I got my undergraduate degree in electrical engineering at Cornell University, and then my medical degree at University of Pennsylvania. I did a residency University of Pennsylvania, and then a fellowship at the University of Washington.

Q. And when did you graduate from medical school?

A. 1987.

Q. And when did you complete residency in orthopedic surgery?

A. 1992.

Q. And do you have certain board certifications?

A. I'm board certified in orthopedic surgery.

Q. And within orthopedic surgery, do you have particular specializations?

A. My specialization is orthopedic oncology and adult reconstructive surgery.

Q. And would adult reconstructive surgery

include total knee replacements?

A. Correct.

Q. There's a book of exhibits in front of you. I would ask you to turn to -- it's tabbed as D-5.

A. Okay.

Q. Which actually, I believe, has been previously admitted.

You came to, in 2001, examine the plaintiff in this case, Mr. Crisco; is that correct?

A. Correct.

Q. Okay. Do you have an independent recollection of that examination?

A. Vague. I see Mr. Crisco today and I recognize him and I recall seeing him; but I -- other than what's written here, I don't recall the details.

Q. Okay. Then I'll ask you to just sort of refer to your note, which is on page 1.

When did you come to see Mr. Crisco?

A. It says here August 27th, 2001.

Q. And in what context were you -- did you see him?

A. Well, I had got a call from Dr. Bhagia and

we talked about him a little bit, and I said sure, you know, I would be happy to give you a second opinion, and so he was sent down to Seattle.

Q. And what were looking for in your -- sort of when you were giving a second opinion, and what were you -- giving a second opinion on what?

A. Why his knee was so painful.

Q. Okay. And again, if you need to look through your note, please do. But what was it -- what did you look for?

A. Well, the two typical things that I look for when someone has chronic knee pain that doesn't have a distinct or clear, you know, etiology, distinct or clear cause, would be loosening of the prosthesis, infection, or reflex sympathetic dystrophy, which is now referred to as complex regional pain syndrome.

Q. And what is RSD?

A. Well, it's -- again, it's a poorly defined, probably neurogenic mediated pain syndrome that some people can get after sort of the slightest injury, but it typically follows a more severe course. But it's not really well understood.

Q. So would those -- those were the possible explanations for Mr. Crisco's knee pain?

A. Correct.
Q. And then you did a physical examination of Mr. Crisco?
A. Correct.
Q. What did that entail?
A. Well, referring to my notes, for me the important things were that he didn't have any evidence of local inflammation in his knee that wasn't an effusion, wasn't red or warm. There was no evidence of an abscess.
Q. Did those rule out particular things?
A. Rule out is tough in total joints, but it makes -- it makes infection much less likely.
Q. Please go on.
A. And it makes it a little less likely that he has RSD. But again, for either of those, it doesn't rule them out. So I also looked at his motion, which was actually good. I have here 5 to about 115 degrees and his knee was also stable. In other words, there was no ligamentous instability that I could detect.
Q. And what range of motion would you expect to find for an individual that had a total knee replacement?
A. Well, in my opinion, you know, ideally you

want about 0 to about 110. You know, 90 degrees is fair, but it makes negotiating stairs a little more difficult, and 115 degrees is fine. I mean, I'm happy when my patients get that.

Q. So his range of motion was good?

A. Yeah.

Q. What else did you find on your examination?

A. Can you be more specific?

Q. Well -- well, okay, let me -- one thing that's noted here is that the records or the x-rays and such from the VA were not forwarded to you.

A. Correct.

Q. Were those essential in, you know, making your diagnosis when you saw him in --

A. In the end --

Q. -- August?

A. In the end you need to see them.

Q. Yes. And did you ultimately -- you know, did the --

A. Apparently two weeks later, instead of sending them, he hand delivered them and I was able to look at them.

Q. Okay. And that's, I think, on page 7.

A. Correct.

Q. And did reviewing the x-rays change your assessment of Mr. Crisco in any way?
A. No.
Q. So what was your overall evaluation of the possible cause for his knee pain?
A. It makes loosening less likely when you don't see radiographic changes. And something called his erythrocyte sedimentation rate was normal at that time. Again, it's imperfect, but it makes infection less likely.
And so I guess the two things I would be left with is just painful knee of unknown etiology, sometimes you never figure that out. Or also possibility of reflex sympathetic dystrophy.
Q. Okay. And would there be additional tests that you would want to order or have taken to rule in or rule out RSD?
A. Well, again, you know, in some sense in my mind RSD is a diagnosis of exclusion. And so there is no perfect test. Bone scan is a reasonable thing to do. But in the end we sort of often diagnose people with RSD when everything else doesn't pan out and they have a painful extremity.
Q. And was -- did you consider malposition of the tibial plate as a possible cause of Mr. Crisco's

knee pain?

A. Two things. At this point all I can say is that I didn't note it in my -- in my -- the notes from clinic. And I usually look for it to see if it's extreme.

Q. And would the range of motion --

A. Well, the --

Q. -- do any diagnostic clues?

A. Well, the way that malpositioning typically manifests is instability. So ligamentous instability, soft tissue instability, or lack of range of motion. And those are sort of the two main things, two main ways it manifests.

Q. And you didn't see either in Mr. Crisco in your examination?

A. Well, he lacked a little bit of extension. But his flexion was excellent.

Q. And if -- in this case, I think you're familiar, that the allegation is that there was negligence with anterior slope, if there was an anterior slope to the tibial component, would that affect extension or flexion?

MR. KAPOLCHOK: Your Honor, I would object to that. This witness is a medical fact witness; he hasn't been designated as an expert. I think it's

beyond -- you know, they have a duty to disclose opinions if they're going to use him as an expert. And on that basis, Your Honor, I would object. In all due respect to Dr. Chansky and his medical background.

THE COURT: Is it correct that he's not been formally designated in your pleadings with the court as a testifying expert?

MR. POMEROY: Correct. The only witness that's been designated as an expert by either the plaintiff or the defendant is Dr. Vigeland.

THE COURT: Okay. I had some trouble following the question and was going to interrupt it at this point and say, wait a minute, you've lost me.

MR. POMEROY: Okay.

THE COURT: So either try it again and you're going to get another objection, or move on. It's your choice.

MR. POMEROY: Okay. Thank you, Your Honor.

BY MR. POMEROY:

Q. So moving on.

With Mr. Crisco, were there -- what was your -- were there any other additional tests that

you thought of ordering to help try to rule out what may have been the cause of his pain?

A. There are always other tests you can get, but I -- you know, again, this is a recollection in reading my note. I felt that -- I didn't think other tests were going to turn up anything.

Q. And what was your recommendation, as far as a course of treatment for Mr. Crisco?

A. Well, I can't remember specifically discussing it with Mr. Crisco, but I know I did call Dr. Bhagia and I just felt that he was not going to be helped by additional surgery.

Q. And so what recommendations did you make?

A. To observe him, just to watch him and try to treat his pain.

Q. I think you noted also that physical therapy would be --

A. Okay. Right.

Q. -- of help?

A. Possibly of help.

Q. Any other treatment modalities that would possibly be of assistance?

A. You're referring to my notes or asking me just in general?

Q. In general.
MR. KAPOLCHOK: Same objection, Your Honor.
THE COURT: Sustained.
BY MR. POMEROY:
Q. Well, now I'll refer to your notes on page 1.
A. Okay. I don't see that I recommended anything else.
Q. Okay. And in the middle of your physical examination you state that he would be best treated in Alaska by rehabilitation medicine and perhaps anesthesiology?
A. Right. With the focus -- right, as I had mentioned, with the focus being on trying to treat him symptomatically, treat him medically.
Q. And the rehabilitation medicine, that would be the physical therapy?
A. Well, rehabilitation medicine also, in most places, takes charge of certain patients with chronic orthopedic pain also.
Q. And other than the -- now, you said you saw Mr. Crisco briefly a second time?
A. I don't know that I saw him. The note said that Chief Resident Carla Smith saw him and

basically he was there for me to see the x-rays, and I looked at those.

Q. And then you spoke to Dr. Smith?

A. Correct.

Q. And her notes are there on page 7?

A. Correct.

MR. POMEROY: I have no further questions.

THE COURT: You may cross-examine.

MR. KAPOLCHOK: Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. KAPOLCHOK:

Q. Good morning, Dr. Chansky.

A. Hello.

Q. My name is George Kapolchok. We actually had some peripheral contact in another matter involving your interest in orthopedic oncology; your patient was Warren Bailey. Do you remember Mr. Bailey?

A. Yes.

Q. You did a number of surgeries on Mr. Bailey?

A. Yes.

Q. Do you actually remember picking up the telephone and calling Dr. Bhagia with reference to

Mr. Crisco?

A. I can't say I remember picking up the telephone and calling him. I remember us having a conversation.

Q. Do you remember whether that conversation was before the x-rays were brought back down by Mr. Crisco and he was seen by your chief resident, or whether it was after?

A. It was before I saw Mr. Crisco the first time.

Q. Oh, you had a conversation with Dr. Bhagia before you saw --

A. Correct.

Q. -- Mr. Crisco?

A. Correct.

Q. All right. To alert you that he was coming down?

A. To ask if I would see him and what I thought initially without seeing him, and then to give him an opinion after I saw him.

Q. So one telephone call with Dr. Bhagia concerning Mr. Crisco?

A. I spoke with him after I saw him, and I don't remember whether that was after the first visit or the second visit.

Q. Okay. Fine.

With respect to your examination on the -- was that the 11th of September? I'm looking at D-5, Doctor, the first page. Or was that --

A. Right. No, that --

Q. -- August 27th?

A. That was August 27th.

Q. All right. Thank you for clarifying that.

You noted -- I'd like to focus first on your consideration of infection as being the problem.

You state under physical exam, there is no significant knee effusion. What is that? What is knee effusion?

A. Fluid inside the knee joint.

Q. You continue to address that issue, do you not, Doctor, when you say there is no warmth, no redness; do you see where that is?

A. Correct.

Q. And no effusion, same thing, and I highly doubt infection. I highly doubt what, that he has any sort of infection?

A. Correct.

Q. If you had had the lab results and they did show negative indications of infection, I take

it your impression would be closer to a diagnosis then?

A. Well, there's a small proportion of patients that have just slow chronic indolent infections and their labs are always normal. And you ultimately don't really know until you go in and revise them.

Q. And if you did that, if you went in to revise and took -- what would you do, take fluid samples and tissue samples?

A. Correct.

Q. All right. Is there a distinction, Doctor, where you say, still my impression is that he has a reflex sympathetic dystrophy-like syndrome.

Is that on a scale comparing a diagnosis, is that just what it is based on the limited information, it's just an impression that he could fall within that diagnosis of exclusion?

A. It was an impression, because nothing else seemed very likely at that point.

Q. Doctor, do you have a recollection -- would you turn to page 7?

Am I correct in reading this, that this is a note by Carla Smith?

A. Correct.

Q. If I could go over it with you and see if I'm understanding this correctly. She starts off by saying, "Please see the comprehensive note by Dr. Chansky dated two weeks ago."

That's what we were just looking at?

A. Right.

Q. Okay. And it goes on to say, "Mr. Crisco is a 63-year-old gentleman who presents now from Alaska having had total knee replacement on the left approximately nine months ago. Full evaluation was done by Dr. Chansky and appears in the computer."

Now, is that something we don't have, or is that the note we looked at where Mr. Crisco showed up without his records?

A. That is the note from that first visit.

Q. Okay. Now, Carla Smith is a resident -- what's the relationship, professionally, between you and Carla Smith? Is she training under you?

A. She's training at that point in time under me, correct.

Q. Okay. It says here, "Nothing of substance was changed today; however, the patient brings with him his x-rays and fax laboratory reports from Alaska."

Okay. Do you know if she did an

examination?

A. I don't.

Q. All right. Ms. Smith makes a comment about his radiographs, which demonstrate well-placed components with reasonable alignment and an unsurfaced patella.

She goes on to state, "His ESR" -- what is that?

A. Erythrocyte sedimentation rate.

Q. Okay. -- "was apparently three on July 18th, '01."

What does that tell you?

A. As she said, as Dr. Smith said, it makes it unlikely that there's an infection. Not impossible, but unlikely.

Q. Okay. So the level of confidence, as you did to rule out infection, is increased to some degree?

A. To some degree.

Q. Okay. And then it talks about her filling in a letter to hand carry to his primary care physician. And it says that "We continue to believe that his symptoms are consistent with reflex sympathetic dystrophy and not with any surgical amenable cause."

Okay. It says, "The films were reviewed with Dr. Chansky." Now, is that something Dr. Smith did with you?

A. Correct.

Q. Do you have a recollection of what films Mr. Crisco brought with him?

A. No.

Q. Obviously it would not be films that had been in this courtroom from November, correct?

A. I don't understand that question.

Q. It was not worth responding to. I apologize.

This meeting with -- that Mr. Crisco had with Dr. Smith was on what date?

A. September 10th.

MR. KAPOLCHOK: Okay. If I may have a minute, Your Honor.

Thank you, Doctor.

THE COURT: Any redirect?

MR. POMEROY: No, Your Honor.

THE COURT: Thank you, Doctor. You may step down.

Call your next witness.

MR. POMEROY: Dr. Vigeland.

THE CLERK: Please stand before me so I

can swear you in.

Please raise your right hand.

(Witness sworn.)

THE CLERK: Thank you.

Please have a seat in the witness box.

Please speak into the microphone at all times.

State your full name, spelling your last name, and a current address.

THE WITNESS: Theodore John Vigeland. V-I-G-E-L-A-N-D. 1517 Southwest College Street, Portland, Oregon.

THE CLERK: Thank you.

DIRECT EXAMINATION

BY MR. POMEROY:

Q. Dr. Vigeland, what's your profession?

A. Orthopedic surgery.

Q. And we've identified your CV as Exhibit D-7 in the book there. Could you turn to that.

A. D-7? You probably have to help me here.

Okay. Got it.

Q. Okay. Let me just go through your sort of background. What's your current position?

A. Presently I'm an assistant professor of

orthopedics and rehabilitation at Oregon Health & Sciences University, and a consultant at the Portland Veterans Administration Hospital.

Q. How long have you been with the University of Oregon?

A. Since 2000.

Q. And before that, what did you do?

A. I was in private practice in Portland doing orthopedic surgery.

Q. Where did you obtain your medical degree?

A. I graduated from the University of Oregon medical school and spent a year of internship there, prior to serving in the medical corps in the Army for four years, and then I completed my four years of residency in orthopedics at the University of Oregon before entering private practice.

Q. When did you obtain your medical degree?

A. 1968.

Q. And when did you complete your residency?

A. 1977.

Q. And when -- I assume you're board certified?

A. Yes.

Q. Okay. When did you obtain certification?
A. 1979.
Q. And does that require recertification?
A. Well, technically I was grandfathered in. But I did recertify ten years later, so I have been recertified.
Q. And when you were in private practice, was that as an orthopedic surgeon?
A. Yes.
Q. And now at the university, what's the nature of your professorship?
A. Well, it's a training program, so I train orthopedic residents. I generally have a chief resident or a fourth-year resident, and I do, essentially, exclusively hip and knee replacement surgery.
Q. And just taking a look at your -- the CV that you provided that was a couple of years ago, I'd just ask you to identify if there is anything in that that needs to be updated or changed?
A. No, I don't think so. There have been some additional presentations and so on, but the activities I participate in are the same.
MR. POMEROY: Okay. I'd move for the

admission of D-7.

THE COURT: Is there objection?

MR. KAPOLCHOK: No.

THE COURT: D-7 is admitted.

(Exhibit D-7 admitted into evidence.)

MR. POMEROY: And I'd also move for the admission that Dr. Vigeland is an expert in orthopedic surgery.

MR. KAPOLCHOK: No objection.

THE COURT: Accepted.

BY MR. POMEROY:

Q. Doctor, I asked -- I've asked -- retained you as an expert in this case to review materials and render an opinion.

I'd like you to sort of identify briefly what materials you have reviewed in conjunction with this case.

A. Well, essentially I reviewed all the medical records from 1983 through 2003 when Mr. Crisco was anticipating his amputation. I didn't review medical records subsequent to that, but from 1983 to 2003, approximately.

Q. And then have you reviewed things in addition to the medical records?

A. X-rays, a large number of x-rays pre- and

post-op.

Q. And were you provided any depositions to review?

A. Pardon?

Q. Were you provided any depositions taken in this case to review?

A. Yes. Yes. Approximately a year ago a deposition was taken in regard to this case.

Q. Okay. Were you --

A. In Portland. I was deposed, yes.

Q. You were deposed. But also, did you review depositions that I provided you?

A. Oh, I'm sorry. Yes, I reviewed I believe all the depositions of the people that are here today.

Q. And that's --

A. Mr. Crisco and Dr. Bhagia and Dr. Chansky. And there may have been another one; I don't recall.

Q. You reviewed Dr. Ross -- or, excuse me, Dr. Hall's deposition?

A. Oh, Dr. Hall. Yes, Dr. Hall's as well. Yes.

Q. And you've reviewed the complaint in this case?

A. Yes.
Q. And the allegation is Dr. Bhagia's surgery in January 2001 was negligently performed. Do you have an opinion on that?
A. Yes. I don't believe it was negligently performed. I think the position of the prosthesis was satisfactory. It was difficult to assess very accurately with the x-rays that were available, but I think that the allegation that the anterior slope of the tibial component contributed to the postoperative course was not -- is not accurate.
Q. Okay. I'd like to elaborate upon that. The postoperative -- well, let's start with the anterior -- or the allegation that there was an anterior slope to the tibial component.
You said that you reviewed the x-rays that were taken.
A. Yes.
Q. And you said that they were not helpful or definitive?
A. Well, I don't believe they were definitive. It's very difficult to assess anterior slope unless you have an accurate lateral x-ray that will show you the axial alignment of the tibia so that you can measure that against the perpendicular

of the proximal tibial where the slope is measured.

Q. And what --

A. And --

Q. And when you say -- what type of x-ray are you talking about when you --

A. Lateral x-ray of the -- preferably of the entire tibia or at least a good deal of the tibia, including the knee and ankle joint would be ideal. But you always have to include the knee joint and the farther down the tibia you have the x-ray exposed, the more accurate the measurement would be of anterior slope, posterior slope, or neutral.

Q. And none of those -- and you didn't find any of the x-rays that were reviewed in this case provided that -- adequate views to assess the axis?

A. I think they were limited. My recollection is that it was limited. None of them showed the ankle joint. And they also had to have perfectly correct rotation, because if you have an oblique x-ray, then it alters the measurement of slope.

So my recollection is that some of them looked reasonable, and you could make a measurement,

but the measurements would vary. And some looked like they were in some anterior slope at 3 degrees, some looked like maybe 5 degrees, some -- one AP x-ray particularly looked like it may be just neutral and no anterior slope.

But, again, it's pretty well -- pretty well considered that you need very accurate x-ray to make an accurate measurement of slope.

Q. And does the degree of slope make a difference, as far as diagnosing pain?

A. Well, I don't think that -- I don't think anterior slope in a postoperative period would cause pain, no. I think that if there were a problem with anterior slope, and I'm not convinced that anterior slope of 3 to 5 degrees or whatever you'd like the number to be, would be a significant factor in postoperative pain.

If someone had excessive anterior slope, I would expect the symptoms to arise gradually over a period of months or longer, as the knee stresses increase and pain occurred. But it would not be expected to produce acute, severe unrelenting pain from day one.

Q. What type -- what things do -- or would be causing acute significant unrelenting pain, such as

Mr. Crisco reported?

A. Correct. Well, I have no doubt that he had pain. And it's very difficult sometimes. Some studies will estimate that up to 10 percent of people with knee replacements will have persistent pain for a long period of time, even a year or longer, up to five years before resolving. Acute unrelenting pain from day one suggests to me an infection, obviously, is one possibility.

It was discussed earlier about complex regional pain syndrome, and that's a possibility. That's usually more of a delayed onset, but can be. And just unexplained pain. People with multiple previous operations, for instance, will have severe unrelenting pain and stiffness. And it's basically unexplained. I don't think we can put a specific diagnosis on it. We rule out as many things as we can, but it's not unusual to be left with: We don't know why it hurts so much.

Q. And for RSD, since we've sort of been using that term, are there particular diagnostic tests for that?

A. Well, I think there's a clinical pattern as has been discussed, it's unexplained pain after either a trivial injury or major insult, like

surgery is.

Probably the most diagnostic test would be to have an anesthesiologist do sympathetic blocks. And that's done through pain management. You can get a sympathetic block and see if you get relief. It's one of the many options to try to rule out sympathetic dystrophy.

I'm not an expert on that, because I think it's such a rare condition. I'm not sure that I've seen RSD in a knee replacement patient.

Q. What's more common, if RSD is very rare?

A. Yeah. Well, most common is unexplained. But in terms of explained pain, infection is probably the most common.

In the acute phase, you know, if you get out five to ten years, then you look at mechanical loosening as being much more common of course than infection. But in the short-term I would say infection.

Q. And I was just going to ask about loosening, because there's been testimony about that as a source of pain. But you said that that's only more common --

A. It's a long-term diagnosis. We rarely see loosening acutely unless there's been some problem

with the surgery itself that left the component loose and it was never absolutely fixed.

But most common kind of loosening is what occurs with wear over a period of time. And it's generally -- you know, we hope that it's in ten years, we hope that it's 20 years, but sometimes it's three years and in that range when it becomes mechanically loose because of the body's effect on the implant-surrounding bone.

Q. But within nine months of total knee replacements, that would not be something that you would seriously consider?

A. No, not -- not unless it's infection.

Q. Now, you had indicated that one of the x-rays you looked at you thought provided a zero slope?

A. Uh-huh.

Q. And that's, I think -- that had been identified during your deposition. And I'd --

A. Correct.

Q. -- like to show you a couple of x-rays I think will show, and you can explain what you mean by that.

A. Yes.

Q. And these were the x-rays taken in March

12th of 2001 that have been previously identified as D-17, 18, 19, and 20.

So I'll -- permission to approach and set up the light table?

THE COURT: Go ahead.

THE WITNESS: This will be fine there.

THE COURT: It may be fine for you --

THE WITNESS: Sorry.

THE COURT: -- but not fine for me, Doctor.

THE WITNESS: Sorry.

THE WITNESS: Well, what I was referring to is the AP x-ray here. And --

THE COURT: Which one is --

BY MR. POMEROY:

Q. What does AP stand for?

A. I'm sorry. Anterior -- anterior to posterior x-ray, which is this x-ray on my right.

THE COURT: Which one are we looking at?

THE WITNESS: This one right here.

BY MR. POMEROY:

Q. And that's D-17.

A. I'm sorry, D-17.

And so one way you can tell anterior slope of the tibial component is to imagine that we've got

a flat surface here and the shadow in the back is the back of the tibial component, the metal base plate.

And so if you figure that this is flat, then that's a 0 degree anterior slope if the leg is extended fully. It's just one x-ray that suggests that if the x-ray was taken appropriately that there was not any excessive anterior slope.

Now the other x-ray is a lateral x-ray. And --

Q. And that's --

A. And that's D-18.

Q. D-18.

A. And that, on the face of it, looks like there's anterior slope in the tibial component. This is going down instead of being neutral or tilting backwards.

Q. How much is the tibia is --

A. Well, there's very little of the tibia. And one would like to have more of the tibia to determine exactly what the anterior slope is. And also the rotation is very difficult, because he's had a previous bone-cutting operation at the upper end of the tibia prior to this operation, and that makes anatomy all distorted. And so it makes it

difficult to determine whether the rotation is correct to make an accurate measurement of the anterior slope.

So looking at that, I would say that it looks like he's got some anterior slope, but I don't think there's any way to make an accurate measurement of whether it's 2 degrees, 3 degrees, or 5 degrees.

Q. And are you taking into account the plastic component of the -- or plastic part of the tibial component?

A. Right. Well this particular -- all this measures is the base plate. And then the plastic component has some posterior slope built into it, and so that would be -- that would neutralize, in effect, any of the anterior slope of the base plate.

So if the anterior slope of the base plate, for instance, was 5 degrees and the posterior slope of the plastic were 4 degrees, then its anterior slope would be 1 degree.

You can't -- you have to just measure the base plate, that's all you can see accurately, not the plastic, which is the dark shadow present.

Q. Thank you.

Now, there's been some reference to a diagnostic bone scan that Dr. Hall performed in October of 2001. And I believe you've seen Dr. Hall's deposition and his medical records relating to that.

Does that affect your sort of opinion on the cause of Mr. Crisco's pain in any way?

A. No. The bone scan was positive and a positive bone scan gives you some information. It's not as valuable as a negative bone scan.

A negative bone scan is very valuable in terms of ruling out infection, loosening, sympathetic dystrophy and all these other things. A positive bone scan is nonspecific. It basically tells us that there is some active bone change going on around the knee. It could be infection, it could be mechanical loosening, it could be stress, it could be microfractures, it could be all sorts of things.

But it's a nonspecific finding that just suggests that -- in many instances, it suggests that, yes, that's real, that's -- there's something going on there that's not normal. A bone scan will typically be normal after about three months after a knee replacement, but -- and sometimes longer. But

it's very nonspecific.
Q. And what does the bone scan measure?
A. Well, it measures -- it can measure inflammatory change, it basically measures bone turnover. Inflammatory change, it can be due to multiple causes, as I mentioned. You look for it in terms of infection, but in an infection you really have to do an additional scan that's called a white cell scan, and then hope that the white cell scan is positive and the bone scan is negative, and then you think you might have an infection, but a bone scan per se is very nonspecific. Negative being more valuable than a positive.
Q. And you said typically a bone scan may be negative after three months?
A. It can be -- it could be positive for some time, depends on patient activity level and whether the implant was cemented or not cemented in, whether it was -- so I don't really --
Q. What --
A. Go ahead.
Q. I'm sorry, what effect does cementing have on the bone scan?
A. Well, it makes it more instantly stable, so that the micromotion is eliminated at the time of

surgery, whereas if you don't cement an implant then the bone gradually has to grow into that implant to make it solid, and that requires a lot of metabolic bone activity in order for that to happen. So that's the difference.

And I'm not certain how soon a bone scan would cool off on average. I'm sure it's very variable, but we just don't do bone scans routinely on normal knees, so, you know, a knee that's not hurting doesn't get a bone scan, so I don't know exactly when a bone scan would be absolutely cool or negative after a successful knee replacement.

Q. But do you know how -- I guess maybe I might be asking the converse of that question, but on -- is there any -- do you know how long a bone scan may be, to use the term, "hot," after a knee replacement surgery, sort of like at the outer edge of time?

A. In a successful knee replacement?

Q. Yes.

A. The patient is asymptomatic, I don't know that that data is available.

Q. Okay.

A. How long a bone scan would remain warm.

Q. Okay. What's the purpose -- or what's the

diagnostic value of range of motion after a knee replacement surgery?

A. Well, it's critical to a patient's recovery. We like to have them have, you know, full extension, 0 degrees of extension, and flexion beyond 110 degrees is kind of the gold standard for a standard knee replacement.

Somebody who has had previous surgery, particularly an osteotomy, would not necessarily be expected to get that kind of motion.

Postoperative motion is determined a lot by preoperative motion, so if you're stiff before the surgery, it's not unlikely that you'll be stiff after the surgery.

But in Mr. Crisco's record, it suggested he had gained excellent motion and there was some records in there that suggested that he had 0 to 123 degrees, I believe, that I saw in one of the therapist's records.

But at any rate, even if it's as high as it was described earlier, 5 to 105 degrees, that would be considered a good result after an osteotomy following -- or followed by a knee replacement.

Q. And concerning the allegation that Mr. Crisco's had a negligently placed anterior

slope. Does the range of motion give any indication whether there was unacceptable tibial slope, or not?

A. Well, there's never -- until just recently, there's never been a real study on the effectiveness of slope on range of motion. There have been computer analyses and so on, but there is a recent study that shows that from 0 to 5 degrees of posterior slope doesn't make any difference in the range of motion. I mean, there's been an argument that if you have abnormal slope, particularly inadequate posterior slope, you're going to be limited in your motion of your knee.

But none of those were clinical studies that actually measured people until just recently in any routine studies; there is a study out of Wayne State that compared 0 degrees of slope to 5 degrees of posterior slope and there was actually no difference in range of motion.

And some of the people in that study with 0 degrees -- or with -- had 4 degrees of anterior slope and it did not affect motion. They were part of that study.

So I don't -- I think in general we thought that posterior slope, we don't talk about

anterior slope, because they're really -- that's not the goal is to have somebody have anterior slope, but the argument is about 0, 5, 7 degrees of posterior slope, and that argument's never been settled, but the concern was in terms of motion.

So, you know, intuitively I would think if someone gains excellent motion, then one can -- one can believe that the slope of the implant had nothing to do with that motion, or it certainly didn't restrict that motion, abnormal slope.

Q. And I sort of asked you, but why do you not believe that if -- assuming there was some anterior slope to his component, why did that not cause Mr. Crisco's pain?

A. Well, I just don't believe that mechanical malalignment causes acute unrelenting postoperative pain. We see this in people who are malaligned, the symptoms generally arise months, years later because of abnormal stresses put on the knee because of the malpositioning of the implant. Most commonly that's in a patient who is too bow-legged, for instance, after a knee replacement. They put a lot of stress on the inside half of their knee and they gradually loosen, et cetera.

In someone who -- if someone had excessive

anterior slope, then I would expect them possibly over time to develop some anterior knee pain. But I would not expect that to happen for, you know, months, if not years after a person's active and fully recovered and it's that kind of a pain.

And I would not expect it to cause unrelenting, narcotic-requiring pain from day one.

Q. And just to be clear. Your opinion is not that the tibial component was negligently positioned in Crisco's case?

A. I don't believe it was, no -- well -- no, I don't believe it was.

Q. And there's been some discussion about -- sorry -- different manufacturers of knee components. Now, what kind of -- do you have a preference among the different manufacturers?

A. Well, I do have a couple of different knees that I use from different manufacturers, depending on patient age, activity level, et cetera. And I probably use more from a manufacturer called Zimmer. And then the second most commonly from a manufacturer called DePuy, which does the mobile bearing type of knee, which is a little different concept. But there are multiple manufacturers of total knees. They basically all have come from the

concept of the total condylar, which has been around for 30 years, and I put in as a resident.

And so the manufacturers now have modified these implants slightly, but there are no good clinical studies that would suggest that one manufacturer's knee is superior to another manufacturer's knee. A lot of it's opinion and training and what you use. It is determined -- determined by a lot of things.

I've done Smith & Nephew knees as well, because it was a favorite of the chief of orthopedics at the VA in Portland who was there for many years, so he did all Smith Nephew knees, so you'd see those in follow-up, and revised some of those too.

Q. And Smith & Nephew is the manufacturer of the Profix knee?

A. Yes. Yeah.

Q. So you're familiar with the Profix knee?

A. Yes, uh-huh.

Q. And that component has -- the plastic component has an anterior slope -- I mean, excuse me. A posterior slope built into it; is that correct?

A. My recollection, yeah. I do not use -- I

have not used it as a primary knee, I've used it as a revision knee, and so revision knees are much different than primary knees, but my recollection is that the primary knee does have a built-in slope in the polyethylene.

MR. POMEROY: Those are all the questions I have, so...

THE COURT: Are you going to cross-examine?

MR. KAPOLCHOK: Yes. Thank you, Your Honor.

CROSS-EXAMINATION

BY MR. KAPOLCHOK:

Q. Dr. Vigeland, welcome to Alaska.

A. Thank you.

Q. First trip?

Just to follow up on your last comment. You recall me going to Oregon and deposing you?

A. Yes.

Q. And at that time, sir, you told me that you never installed a Profix knee as a primary; and that's correct, isn't it?

A. Yes. I believe so, yeah.

Q. Okay. All right. So when you're familiar with them, you're familiar with them like Dr. Hall

is familiar with them, and that's revising them or fixing them or replacing them?

A. Sure. But we look at knees -- I try to encourage the residents to use all different kinds of knees, so that they are comfortable with different manufacturers and understand the differences, and then they can make their selection when they go into practice. I may have implanted some primary Profix knees at the VA. I do so many knees, I'm not certain about that. But I'm not -- it's not my primary knee.

Q. To begin, Doctor. I'd like you to assume that the following questions I'm going to ask do refer to a primary, as you surgeons call them, or a first-time knee replacement; okay? All right?

A. Yes.

Q. And just to be absolutely clear that you have not, or you do not recall ever installing a Profix component knee as Mr. Crisco had in this case?

A. That's correct.

Q. All right. I believe you told me, sir, that you typically use the components manufactured by Zimmer?

A. Yes.

Q. All right. And you're aware that Dr. Hall used a Zimmer knee to replace?
A. Yes.
Q. All right. Installing the Zimmer component, unless there's very unusual circumstances, I believe you told me, you always install the knee with a 7 degree posterior slope on the tibial component?
A. That's correct, but it is because I sacrificed the posterior cruciate ligament when I do knee replacements. Not everybody does that. And so if you don't sacrifice the posterior cruciate ligament you tend to put them in -- it's recommended you put them in neutral, 0 sloped. By some people. There's a lot of debate about that.
Q. In fact, the manufacturer provides a so-called cutting block that --
A. Correct.
Q. -- measures 7 degrees?
All right.
A. And also a 3 degree cutting block is provided.
Q. Have you reviewed Dr. Ross's deposition in this matter? Dr. Ross is a young orthopedic surgeon, now practices in Soldotna?

A. No, I don't believe so.
Q. Dr. Ross will testify in this case, and he uses the Zimmer and he also uses the 7 degree posterior slope.
Dr. Hall testified, and you've read Dr. Hall's deposition?
A. Yes.
Q. He uses the 7 degree posterior slope.
A. Yes.
Q. The normal knee, Doctor, the normal knee, the tibial part of it has a normal posterior slope to it, does it not?
A. Correct.
Q. And the Profix knee that Mr. Crisco had, the manufacturer recommends -- they never tell you what to do, do they?
A. No, sir.
Q. No. They leave it to your discretion. But they recommend a 7 degree posterior slope, don't they?
A. I don't know that.
Q. Okay.
A. I would be surprised, because this is a posterior cruciate retaining knee, and consensus is not among surgeons that they would recommend a

degree slope with a cruciate retaining knee, but as they say, those recommendations are all over the map. But I don't argue that the manufacturer recommends that if that's what's in the brochure.

Q. In the manufacturer's literature that comes with the kit?

A. Correct.

Q. All right. If that's true, Doctor, then an implantation of the Profix knee with a 7 degree anterior slope, that would be a 14 degree deviation, would it not, using at least my mathematics?

A. Well, my understanding is that the polyethylene has built in posterior slope. And the cutting jig, I don't know what the cutting jig is set at.

If the cutting jig is set at 0, then it's a 4 degree posterior slope. You know, if the cutting jig is set at something more than that, then it's more, of course.

Q. If your students installed a Zimmer knee that recommends a 7 degree posterior slope and the net result after that was a 7 degree anterior slope, do you give them a passing grade?

A. No. I wouldn't give myself a passing grade.

Q. Okay. With respect to your practice, sir, you've been out of practice -- private practice, private clinical practice, for about seven years?

A. Yes. However, my university practice is a private practice. It's unusual, I mean, I -- you know, it's basically no different than a private practice.

Q. I see. Okay. Two days a week, at least, you work for the Veterans Hospital, which is part of that complex in Oregon State, right?

A. That was correct at the time of deposition, now it's one day a week at the present time.

Q. And during that one day a week now, two days a week when I deposed you, you would actually do surgery for the veterans?

A. Correct.

Q. The Veterans Hospital did not have an orthopedic surgeon on staff?

A. Oh, yes. They have -- there are several, but I was kind of the designated joint replacement surgeon. Some of my partners there also did joint replacements, but I did the majority of them and the more difficult ones. But there are four of us.

Q. Would you agree, Doctor, that malposition

problems are complications that are controlled by surgical technique?

A. Yes.

Q. In the knee replacements that you do, sir, do you typically use the -- and correct my pronunciation if it's wrong, intramedullary guides when making the tibial cut?

A. Yes.

Q. All right. And perhaps to repeat that, that's an external kind of framework that is attached to the leg?

A. Yes.

Q. Are you aware in this case that Dr. Bhagia used an intramedullary guide?

A. Yes.

Q. Which, my understanding is a drill is used, and then a rod is placed in the tibial bone, and then the cutting blocks are attached to that; is that true?

A. Yes.

Q. Is that -- is that approach to making the tibial cut, is that subject to more -- is that -- is that subject to more or a higher degree of error, in your view?

A. No. I may have thought differently, but

there are recent -- the recent science out of Wayne State measured that very specific question, and the intramedullary cutting guide was found to be extremely accurate in both 0 degrees and 5 degrees of posterior slope cutting blocks.

I have felt that it's more difficult to use an intramedullary cutting block, and so I have used an extramedullary cutting block, which is -- which is basically eyeballing it. You stand back and you think, yeah, that's it.

So it's not real scientific and we've checked that with computer navigation, and I think we do a little bit better job than one would anticipate with that kind of rather archaic method of aligning something.

Q. In your deposition, Doctor, I asked if you were going to rely on any literature to support any opinions you had, and you told me no. And this morning I was given, and heard about, an article that I guess you recently found. The article is dated 2006?

A. Correct.

Q. And it concerns -- I read it very hastily, but it concerns whether or not slope has a correlative or correlation to range of motion?

A. Correct.
Q. The study doesn't involve pain or other problems that might result from --
A. Yes, it did. Yes. It -- I don't remember the exact clinical rating that was used, but they indicated the clinical result was the same also. And that includes pain, function, everything else was also -- I don't remember if it was HSS or what. This is just part of my routine monthly reading.
Q. Do you recall preparing a letter of opinion in this case, Doctor? An opinion letter?
A. I may have. It's been a long time.
Q. It's dated May 4th, 2004.
A. 2004?
Q. Yes.
A. I have no recollection of what I said.
Q. Well, let me ask you about that, and I will get you a -- if you'd like to look at a copy, I can get one for you. I assumed you had one.
You say in this letter, Doctor, and perhaps this will refresh your memory, you state "I have measured several of Mr. Crisco's x-rays and find the degree of anterior slope varies from 2 degrees to 7 degrees."
Do you remember doing that?

A. I do.
Q. You looked at all his x-rays?
A. Yes.
Q. Okay. And your conclusion then was that you found anterior slope that varied from 2 degrees to 7 degrees?
A. Yes.
Q. Do you recall that?
A. Yes.
Q. And do you recall that during your deposition I had you look at a particular x-ray that had been marked by a different orthopedic surgeon. And you agreed with me that that showed 5 or 6 degrees of anterior slope?
A. Correct.
Q. And, for the record, sir, I'll show you that.
That little exhibit sticker, which is No. 1 to your deposition, and that's -- I believe it's been admitted as 3-A. In fact, I'm sure.
A. No, I can see.
Q. Well, the judge can't.
Okay. Let me ask you a few questions about that.
Would you agree, Dr. Vigeland, that the

most accurate way to measure -- do you have it there?

A. Uh-huh.

Q. The most accurate way to measure or to determine whether the tibial component has an anterior or posterior slope or is neutral is from a lateral film?

A. Yes.

Q. And does that appear to be a lateral view of the knee?

A. Yes.

Q. Do you recall during your deposition, Doctor, telling me that that film was a reasonable representation of the anterior slope -- and by that film, I mean the actual lines that have been superimposed on it to attempt to determine the reasonable slope -- the anterior slope.

A. It's a reasonable attempt, yes.

Q. Do you recall telling me in your deposition that you thought the 5 degree measurement looked appropriate?

A. I don't recall that, but I wouldn't disagree with that.

Q. Do you recall telling me that that film looks very close to a true lateral?

A. I don't disagree with that.
Q. Okay. All right. Dr. Vigeland, I'm going to apologize, since we can't seem to find a copy of your opinion letter, I'm going to hand you one that's been written all over.
A. That's fine.
Q. You can disregard that. Mine is even worse.
I use red and yellow.
Do you need a moment to refresh your memory on what you presented in this case?
A. No.
Q. Okay. If you'd look on page 2 of your letter, Doctor.
A. Uh-huh.
Q. Starting down that first paragraph. You say, "I have measured several of Mr. Crisco's x-rays and find the degree of anterior slope varies from 2 degrees to 7 degrees."
You say, "These measurements have a significant standard of error and I did not have available to me a true standing, long leg lateral film to assist in the accurate determination of the degree of anterior slope."
What kind of film were you not provided or

was not made available to you?

A. Well, I think as I mentioned earlier, to make a precise measurement you really have to have a good portion of the tibia, preferably the entire tibia, but, you know, it would be nice to have more of the tibia than was available on these films. The more the better, in terms of making it accurate.

Q. But, you continue to say, Doctor, and this is my concern, "I doubt that there would" -- I guess there should be a "be" in there.

"I doubt that there would be a significant clinical difference between the degrees measured on the current films available." That's your opinion?

A. Correct. By clinical, of course, I meant in the patient outcome, not in -- not in terms of exact measurements, the patient's outcome. I don't think the clinical outcome would vary whether it was 2 degrees of anterior slope or 7 degrees of anterior slope. I wouldn't expect a clinical outcome in the early stages to be any different.

Q. Now, you agree, don't you, Doctor, that malalignment or this anterior slope could cause excessive wear?

A. Long-term, yes.

Q. Okay. You agree also that this anterior slope could cause instability?

A. Yes. Flexion instability. Going down stairs and so on where the femur would have a greater potential for riding forward on that base plate without -- despite the resistance of the quads, quadriceps muscle and the kneecap. So, yeah, you can develop a little bit of instability. I suspect with anterior slope there's nothing in the literature that I've ever found that addresses that topic.

Q. And is the reason for that, that the majority of knees implanted in the United States, anyway, attempt to achieve posterior slope?

A. They attempt to achieve neutral to posterior, yes. Depending on their philosophy.

Q. When you were using your fist to demonstrate, that's the femoral component on the tibial --

A. Right.

Q. -- tray? And you were talking about going down stairs causing some instability. What's the curve of that femoral component called? Is it the Burmeister curve? It isn't a perfect --

A. It's a J curve, it's not a perfect radius.

Radius changes from front to back in the knee. It depends on the design of the knee replacement.

There are some knee manufacturers that think that you can have a perfect radius on the lateral versus others that say you need a J curve, and that's -- the engineers debate that, I would say. And whether there's a different clinical significance to that, I don't think I'm familiar with it being significant.

Q. The instability we're talking about, and the example you used is like going down the stairs, if you've got an anterior slope, would that be exacerbated or increased if, as in this case, the -- that posterior ligament is retained? In other words, that it's tighter back there?

A. Posterior cruciate ligament?

Q. Yes.

A. That would help restrain that, yes, if the posterior cruciate ligament were normal.

Q. Doctor, you have not been asked to review the bone scan that was done in this case; is that correct?

A. I have a recollection that I've seen that, but I can't tell you for sure.

Q. Dr. Hall testified yesterday, and he

talked about increased uptake.

A. Yes.

Q. Let's talk about the bone scans generally first.

I believe you testified today that a bone scan after a knee replacement, especially if it's cemented, is typically normal about three months out.

A. Well, I -- and then I addended that, because I -- that was my assumption, but I don't think there's any good literature on that, because we would not have any particular reason to do a bone scan in an asymptomatic knee, so I think that was my supposition that I would think that it would be normal, but I don't think there's -- I don't think I have any good data to tell you when a bone scan becomes normal after an uneventful total knee replacement.

Q. Okay.

A. We don't order -- we don't order them for that.

Q. By normal, Doctor, you mean negative; it doesn't show?

A. Negative. Correct.

Q. None of these, what's been referred to, I

believe, by Dr. Hall as hot spots or --
A. Correct.
Q. -- uptake?
A. Correct.
Q. All right. And I believe you testified today that if it is positive or abnormal, that could show abnormal stress transfer to the bones?
A. Yes.
Q. And you also said it could be infection?
A. Yes.
Q. You'd agree with me, though, in this case, all of Mr. Crisco's lab work throughout his treatment by the VA, from the day Dr. Bhagia implanted his knee until Dr. Hall revised that, all of his lab work as to his infection was negative?
A. All the lab work that I saw was negative. I believe there was lab work that I didn't see the results of, but what I have heard today about the sed rate being normal. And what I saw in the record about lab work, the culture negative, et cetera, was negative, that's correct.
Q. And you realize from a review of the records that during the revision surgery Dr. Hall took fluid and tissue samples and had them cultured and that they were negative?

A. That I didn't -- it wasn't clear from the record to me whether there was tissue samples sent in addition to -- typically we'll send three to five specimens and a cell count from the fluid in the joint, and a frozen section, to rule out infection at that time. I didn't see that. And I don't know how many cultures were done. I saw a note that culture was negative and I don't recall what else was there.

Q. If what I said is true, and Dr. Hall has testified in court to that, isn't it more likely than not that the bone scan showing these hot spots on the tibia and on the patella, isn't that more likely than not the result of stress?

A. The bone scan was what, eight months after the surgery?

Q. Bone scan was done in October. And the surgery was done in January.

A. January. I don't think I could say that, no. Have an increased uptake in the patella, yes, I think that's possibly the case with a non-resurfaced patella. I would suspect at nine months may show some increased uptake on the bone scan. The tibia, I would be surprised at that point in time, depending on how active somebody is. I mean if

somebody goes out three months after a total knee and starts jogging again, then, yes, if it's malaligned, but...

Q. Dr. Hall testified that he always reads his own bone scans. And you do that --

A. Oh, sure.

Q. -- as an orthopedic surgeon.

You don't rely on a radiologist to interpret the bone scan?

A. No.

Q. You do it?

A. Yes.

Q. Is it your opinion today that Mr. Crisco's pain was -- is the result of a reflex sympathy dystrophy?

A. I don't know.

Q. You testified on direct, I believe, Doctor, that you've seen RSD very rare occasions; is that correct?

A. Yes.

Q. I believe you told me six cases post-knee replacement that you have seen maybe six cases in 30 years of practice?

A. I'd be surprised if there were that many. It may have been six. It's very rare.

Q. Not to beat a dead horse, but the results of the bone scan, you don't recall whether you reviewed it or not, that's fine.

The hot spots that Dr. Hall saw, infection, stress, or mechanical -- I believe you called them -- yeah, mechanical issues. What else could it possibly be?

A. Well, you mentioned RSD, although that's -- it's much more uniform, usually, in RSD, my recollection is, although it's rare. I think those are basically the ones. Mechanical stress or infection. Or a loosening, of course. Mechanical loosening. That goes into the mechanical idea. I mean, if it's loose, it's abnormal mechanics.

Q. But there was no -- there's been no indication or assertion that anything on Mr. Crisco's original knee put in by Dr. Bhagia loosened up, is there?

A. No.

Q. In fact, Dr. Hall's operative report indicates that everything -- the cement had held and everything was --

A. Stable.

Q. -- stable?

A. Yes.

Q. Right. Okay.

MR. KAPOLCHOK: Dr. Vigeland, thank you.

THE COURT: Redirect?

REDIRECT EXAMINATION

BY MR. POMEROY:

Q. Doctor, I want to clarify a couple of points on -- Mr. Kapolchok talked about on cross-examination.

You talked about flexion instability. What is that?

A. Well, it's a relatively new concept. And it refers to instability in knees that occurs primarily with knee in partial flexion. And I think the most common cause is in knees where the posterior cruciate ligament was retained and therefore the implant does not substitute for the posterior cruciate ligament, and then the posterior cruciate ligament gradually stretches out. And so they have trouble with a feeling of instability, like the knee is getting where it just doesn't feel quite right.

And we think it's because of some abnormal motion between the femoral component and the tibial component due to the lack of the posterior cruciate ligament now. And that puts additional stress on

the patella of course, and creates mostly a -- it's a pretty obscure symptom of feeling, like the knee just doesn't feel quite stable.

And these usually resolved when we go in and replace the tibial plastic with a plastic that substitutes for the posterior cruciate ligament and it will generally resolve. It's not a pain problem, it's, you know, a feeling of instability.

Q. Okay. So that in Dr. Bhagia's surgery where he retained the posterior cruciate ligament?

A. Uh-huh.

Q. I mean, that's within standard of care?

A. Oh, very much so, yes.

Q. And also, I think we mentioned a little bit, that Dr. Bhagia retained the patella and also did not resurface the patella in the primary operation.

Is that within standard of care?

A. Yes. Very commonly done.

Q. And if, as you said, if there's some, you know, instability or something from the resurfacing, what's typically done to correct that?

A. If they have flexion instability, typically we just replace the polyethylene and in most cases you have to replace the femoral component

also to solve that instability problem, to substitute with the implant, you substitute for the lack or the damage or the stretching or the incompetence of the posterior cruciate ligament that was retained.

Q. But that's not the situation in Mr. Crisco's -- I mean, it wasn't --

A. No.

Q. -- the instability?

A. No.

Q. In examining, cross-examination, the x-ray offered by Mr. Kapolchok, you said that that was a true lateral view. And maybe just for clarification, what do you mean by true lateral?

A. Well, it's perpendicular to a true AP, I guess. It's a side view that is accurate to be at 90 degrees to the anterior axis. It's hard to define that, I guess, but it's -- it's an accurate lateral.

Q. Okay. And did that x-ray show a significant enough portion of the tibia in order to make an accurate determination of the long axis?

A. Well, it was an estimate of the long axis. And I think, as I mentioned, it was a reasonable estimate of the anterior slope from the film

available.

Q. But it wasn't an ideal --

A. It wasn't ideal.

Q. Okay.

A. And in a clinical study, they probably -- as in the Wayne State study, they would probably eliminate those x-rays as not being adequate because of the decreased length of the tibia available to make an accurate measurement. But it's within clinical relevance, I think.

Q. And there was some discussion about the Zimmer cutting block with a 7 degree posterior slope. Different manufacturers of knee replacements provide different cutting blocks with different slopes; is that -- I think you've testified to that?

A. That's correct.

Q. And did you testify that actually the Zimmer also provides a 0 degree cutting block?

A. Yes. And I believe a 3 degree as well.

There are -- in the course -- the plastic in a Zimmer knee is neutral, it doesn't have any built-in posterior slope. And the polyethylene that we put in on a Zimmer knee. So the bone cut is what you get.

And there are -- there are experts who think you ought to have 0 slope, and there are experts that think you ought to have 7 degree slope and that debate goes on. And the debate is related to range of motion, primarily.

And so since range of motion, just about with all the new implants is very good anymore, we're talking very minor differences in range of motion depending on what implant is used. Most implants have excellent motion.

Q. But within that range that the experts disagree, it's all within the standard of care for an orthopedic surgeon? I mean, the 0, 7 --

A. 0 to 7.

Q. -- 7?

A. Yeah. I think you need --

THE COURT: But it's 0 to 7 posterior?

THE WITNESS: Posterior, correct. I don't think anybody -- nobody aims for anterior slope. How common anterior slope is present after routine total knee replacements, there's no literature on that. I don't know what the answer to that would be.

Because we, again, we don't pay a lot of attention to posterior slope, anterior slope,

neutral slope, on postoperative x-rays and patients are doing well. So if somebody has a lot of problems with their knee replacement, then we start analyzing all these angles and so on, but that's -- that's the unusual case, not the standard case.

BY MR. POMEROY:

Q. So there are patients that would have anterior slope but be asymptomatic?

A. I'm sure -- I'm sure there are those out there.

MR. POMEROY: Those are all the questions I have.

THE COURT: Thank you, sir. You may step down.

Let's take a ten-minute recess.

THE CLERK: All rise. This matter is in recess for ten minutes.

* * * * *

(Excerpt concluded; Counter 10:29:32)

TRANSCRIBER'S CERTIFICATE

I, KATHERINE L. NOVAK, RPR, Registered Professional Reporter, hereby certify that the foregoing transcript is a true, accurate, and complete transcript of proceedings in Case No. 3:03-cv-0011-HRH, Crisco versus USA, transcribed by me from a copy of the audiotaped recording to the best of my ability.

Further, that I am a disinterested person to said action.

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Date

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Katherine L. Novak, Transcriber